



11<sup>th</sup> Annual Conference &  
AGM 2024





Thanks for attending the Alberta Invasive Species Council's 11<sup>th</sup> Annual General Meeting & Conference!

We hope you enjoy the dynamic exploration of terrestrial and aquatic invasive species, biocontrol, vectors of spread, animal diseases, management tools and so much more at this year's event! There are 19 sessions scheduled to run from March 20<sup>th</sup> to 21<sup>st</sup>, 2024. Earn certified pesticide applicator credits, CEU credits, and engage with researchers and experts at the poster sessions in the library.

Thank you for joining us this year!!



***NOTE: Please park in Lot D - be sure to memorize your license plate number and register it at the registration table to avoid a parking fine.***

## Contact Us



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# Alberta Certified Weed Free Forage



Contaminated hay is one-way invasive plants are spread across the province, between provinces and around the world. To address this, the [North American Invasive Species Management Association](#), has set industry guidelines and minimum standards for certified weed free products recognized across North America.

The AISC is thrilled to have received funding from the Canadian Agriculture Partnership to help promote and revitalize this important program. It is our intention to work with producers, municipalities, and the province to facilitate, promote and revitalize the Alberta Certified Weed Free Forage program resulting in more weed free forage on the market in Alberta.

If you are a producer interested in having your forage certified weed free, contact the [AISC](#) or your [local Weed Inspector](#). Inspectors have the authority to certify portions of fields or even fields with weeds present, provided that no invasive plant propagules will enter the baled forage. Inspections must be conducted within ten days of cutting, if the crop is not cut within ten days of cutting, a new inspection must be conducted to certify the forage as weed free.

If you are interested in purchasing Certified Weed Free Forage, see the [AISC webpage](#) for a list of producers or contact the AISC by phone (587 999 0954) or email ([info@abinvasives.ca](mailto:info@abinvasives.ca)).

# Credit Instructions

ATTENTION - Please review the following to receive Certified Pesticide Applicator Credits:

1. See the [agenda](#) (or table below) for sessions that are approved for applicator credits. Note 'All Classes' includes aerial, agriculture, aquatic, biting fly, industrial, forestry, fumigation, greenhouse, landscape, structural, special: interior plantscape and special: seed protectant.
2. In order to receive a pesticide applicator credit, you must:
  - a. Be present for the **entirety** of the session and answer **all** polling questions.
  - b. Record your **name and birthdate** (month and year) on the Attendance List. Applicators not included on the Attendance List will NOT be recognized for credit.
3. Please DO NOT take photos of the Attendance Lists after signing them as there is personal information on these sheets.

Session Name	Presenter & Title	Concept Covered	Classes	Date
Invasive Species on a Global Scale	<b>KEYNOTE: Invasive Species on a Global Scale, but Under an Alberta Perspective</b> Patrick Hanington, University of Alberta and Nicole Kimmel, Government of Alberta	Pest Management	All Classes	March 20
Biological Control	<b>Canada Thistle Rust Fungus (<i>Puccinia suaveolens</i>) Biocontrol Field Trials in Edmonton</b> Mike Jenkins, City of Edmonton <b>Morphological Traits to Differentiate Between Native and Invasive Phragmites and an Update on Biocontrol</b> Michael McTavish, University of Toronto	Pest Management	Aerial, Agriculture, Industrial, Forestry, Landscape	March 20
Invasive Plants – Spread & Pathways in Horticulture	<b>130 Years of Plant Invasion History in Alberta: Patterns and Differences in the Delays Between Introduction and Subsequent Rapid Spread</b> Chris Neeser, Government of Alberta <b>Perspectives from Garden Retailers - Interactions with the Public Regarding Invasive Plant Species</b> Jennifer Hoglin, Gooseberry Gardens	Pest Management	Aerial, Agriculture, Industrial, Forestry, Landscape	March 20
Invasive Vertebrate	<b>The Alberta Rat Control Program</b> Karen Wickerson, Government of Alberta <b>Update on the Alberta Wild Boar Control Program</b> Hannah McKenzie, Government of Alberta <b>Mapping Established Strongholds for Invasive Wild Pig Populations on the Canadian Prairies</b> Ryan Brook, University of Saskatchewan	Pest Management	Aerial, Agriculture, Industrial, Forestry, Landscape	March 20
Aquatic Invasive Species – Monitoring Methods & Updates	<b>eDNA Use for Invasive Species Monitoring</b> Patrick Hanington, University of Alberta <b>Whirling Out of Control; What We Know So Far About Whirling Disease in Alberta</b> Dani Jakovljevic, University of Alberta <b>Emerging Aquatic Invasive Threats in Alberta</b> Nicole Kimmel, Government of Alberta	Pest Management	Aquatic	March 21

<b>Aquatic Invasive Species – Regional Updates</b>	<b>Regional Update Aquatic Invasive Species - British Columbia</b> Martina Beck, Government of British Columbia <b>Regional Update Aquatic Invasive Species - Saskatchewan</b> Matt Tyree and Jeri Geiger, Government of Saskatchewan <b>Regional Update Aquatic Invasive Species – Addressing Aquatic Invasive Species Through Partnerships</b> Thomas Woolf, Government of Montana <b>Regional Update Aquatic Invasive Species Roundtable</b> All	Pest Management	Aquatic	March 21
<b>Aquatic Invasive Species – Prevention &amp; Response</b>	<b>Quagga Mussel Response for the Mid-Snake River, Idaho</b> Nic Zurfluh, Government of Idaho <b>Novel Communications Techniques for Preventing Organisms in Trade in Canada</b> Jenna White, Invasive Species Centre <b>Updates on the AISC’s Don’t Let it Loose Program</b> Chelsea Currie, AISC	Pest Management	Aquatic	March 21



ATTENTION - Please review the following to receive Certified Crop Advisor CEU Credits:

1. See the table below for sessions that are approved for CEU credits.
2. In order to receive a CEU credit, you must:
  - a. Be present for the **entirety** of the session.
  - b. Record your **name, CCA, CPAg, CPSS or CPSC # and signature (in and out)** on the Attendance List OR you can download the [Certified Crop Adviser \(CCA\) app](#) on your mobile device to receive CEU credits immediately by scanning the QR code. Once scanned, the CCA app will automatically sign you in. Anyone not included on the Attendance List will NOT be recognized for credit.



March 20 Sign-In Sheet



March 21 Sign-In Sheet

Presenter & Title	CEU Concept	CEU Credit	Date
<b>Canada Thistle Rust Fungus (<i>Puccinia suaveolens</i>) Biocontrol Field Trials in Edmonton</b> Mike Jenkins, City of Edmonton	Integrated Pest Management	0.5	March 20
<b>Morphological Traits to Differentiate Between Native and Invasive Phragmites and an Update on Biocontrol</b> Michael McTavish, University of Toronto	Integrated Pest Management	0.5	March 20
<b>130 Years of Plant Invasion History in Alberta: Patterns and Differences in the Delays Between Introduction and Subsequent Rapid Spread</b> Chris Neeser, Government of Alberta	Integrated Pest Management	0.5	March 20
<b>Perspectives from Garden Retailers - Interactions with the Public Regarding Invasive Plant Species</b> Jennifer Hoglin, Gooseberry Gardens	Integrated Pest Management	0.5	March 20
<b>The Alberta Rat Control Program</b> Karen Wickerson, Government of Alberta	Integrated Pest Management	0.5	March 20
<b>Update on the Alberta Wild Boar Control Program</b> Hannah McKenzie, Government of Alberta	Integrated Pest Management	0.5	March 20
<b>Mapping Established Strongholds for Invasive Wild Pig Populations on the Canadian Prairies</b> Ryan Brook, University of Saskatchewan	Integrated Pest Management	0.5	March 20
<b>eDNA Use for Invasive Species Monitoring</b> Patrick Hanington, University of Alberta <b>Whirling Out of Control; What We Know So Far About Whirling Disease in Alberta</b> Dani Jakovljevic, University of Alberta <b>Emerging Aquatic Invasive Threats in Alberta</b> Nicole Kimmel, Government of Alberta	Integrated Pest Management	1.0	March 21
<b>Regional Update Aquatic Invasive Species - British Columbia</b> Martina Beck, Government of British Columbia <b>Regional Update Aquatic Invasive Species - Saskatchewan</b> Matt Tyree and Jeri Geiger, Government of Saskatchewan <b>Regional Update Aquatic Invasive Species – Addressing Aquatic Invasive Species Through Partnerships</b> Thomas Woolf, Government of Montana <b>Regional Update Aquatic Invasive Species Roundtable</b> All	Integrated Pest Management	1.5	March 21
<b>Quagga Mussel Response for the Mid-Snake River, Idaho</b> Nic Zurfluh, Government of Idaho <b>Novel Communications Techniques for Preventing Organisms in Trade in Canada</b> Jenna White, Invasive Species Centre <b>Updates on the AISC's Don't Let it Loose Program</b> Chelsea Currie, AISC	Integrated Pest Management	1.0	March 21



# Conference Details

## Poster Session (in Library)

*Please head to the Library on March 20<sup>th</sup> and 21<sup>st</sup> to see all the posters during the breaks from 3:00 to 3:30pm and 5:00 to 6:00pm on March 20<sup>th</sup>, and from 2:15 to 2:45pm on March 21<sup>st</sup>. If you're interested in door prizes, the draw box will be located in the library with the posters – please enter your name for a chance to win!*

### **Understanding the Effects of Human Intervention on Wild Boar Ecology in Alberta**


Hannah Bordin and Mark Boyce, Department of Biological Sciences, University of Alberta

The wild boar (*Sus scrofa*) is one of the widest-ranging, invasive mammals in the world. Native to Eurasia, wild boar were introduced in Canada in the 1980s to diversify the livestock industry and have since spread widely across the prairie provinces. Wild boar are a growing concern in Canada, posing a significant risk to the agricultural industry, natural biodiversity, and public health. Current management strategies in Alberta focus on whole sounder trapping, while hunting is actively discouraged as it causes behavioural adaptations (i.e., increased nocturnality and dispersal) that make continued management more difficult. Additionally, hunting can disrupt wild boar social structures, which is suggested to select for earlier sexual maturity and shorter generation time, ultimately increasing population size. Wild boar have been studied in Europe and the United States; however, limited information on their ecology exists for Canadian populations. The objective of this research is to understand the effects of human intervention on the movement ecology and reproductive behaviour of wild boar in Alberta. In collaboration with Alberta Agriculture and the University of Calgary, wild boar will be radio-collared in areas subjected to hunting, trapping, and non-intervention. GPS data will be used to assess the movement, habitat selection, and diel activity of wild boar. Camera traps will be placed within the range of collared boar, and photographs will be assessed to monitor the frequency of reproduction and litter size. The results of this study will provide spatial ecological data to better inform management decisions of invasive mammal populations in Alberta.

### **Evaluating the Risks of Transboundary Movements of Invasive Wild Pigs at the Canada-United States Border: Implications for African Swine Fever Preparedness**

Dr. Ryan Brook, Department of Animal and Poultry Science, University of Saskatchewan

Invasive wild pigs are now permanently established in the Canadian Prairie Provinces of Alberta, Saskatchewan, and Manitoba and are now far beyond being completely eradicated. They have occurred at least sporadically in British Columbia, Ontario, Quebec, Atlantic Canada, the Yukon. Wild pigs are associated with a wide range of risks and impacts, including environmental impacts, crop damage, depredation on livestock, and they may function as reservoirs and vectors of disease to humans, pets, livestock, and wildlife. Several northern states such as Montana and North Dakota are currently considered wild pig-free. However, they have legitimate and important concerns regarding free-ranging







wild pigs from Canada moving south across the Canada- US border. This poses several risks, including facilitating establishment of wild pigs into currently pig-free states and potentially carrying diseases of major economic concern. This apprehension has increased dramatically in recent years with the global crisis regarding the spread of African Swine Fever (ASF) in Asia and Europe. ASF is a highly contagious and deadly virus that impacts domestic and free-ranging swine of any age. While it is not a human health concern, it can have catastrophic impacts on the domestic swine industries in many countries. ASF has been detected in North America only in Haiti and the Dominican Republic. I use GPS collar data from 31 wild pigs in Canada and a database of 61,000 occurrences to identify the highest risk areas where wild pigs are most likely to move from Canada into the U.S.

### **Environmental DNA for the Detection of Wild Boar in Alberta**

Jim Davies, Susan Koziel, Jori Harrison, and Brian Eaton, InnoTech Alberta, and Hannah McKenzie, Alberta Agriculture and Irrigation

Wild boar are an increasing threat to Alberta's environment and agricultural sector. The control of wild boar on the landscape requires sounder locations to be identified when population densities are low – an application for which molecular detection methods may be well suited. Since 2022, InnoTech Alberta and Alberta Agriculture and Irrigation have collaborated to develop and validate environmental DNA (eDNA) techniques for the detection of wild boar. Goals for this multiyear project include:


- Validation of eDNA assays against locally-collected tissue and scat samples to ensure assays are appropriate for local boar populations.
- Evaluation of rapid-detection kits as a field-expedient method for identifying boar scat.
- Development and improvement of environmental sampling techniques for wild boar monitoring.

In 2022, eDNA- and protein-based assays were evaluated as part of this project. The eDNA-based assay developed by the United States Department of Agriculture (USDA) could reliably identify locally sourced boar/pig tissue and was also useful in identifying boar/pig scat. Unfortunately, kits developed to detect the presence of illicit pork proteins in foodstuffs did not reliably identify pig or boar scat. Environmental samples were collected from twelve field sites in 2023. Paired water samples were collected using USDA (grab sample) and InnoTech (filtration) methods, allowing evaluation of their relative performance. Mud and soil samples were also collected from suspected trackways as identified by field personnel. Laboratory and statistical analysis of these samples continues in 2024.


### **Aquatic Mesocosms for Invasive Species Research in Alberta**

Jim Davies, Ryan Melnichuk, Zhongzhi Chen, and Brian Eaton, InnoTech Alberta

In 2016, InnoTech Alberta, a subsidiary of Alberta Innovates, designed and constructed an aquatic mesocosm facility at its Vegreville site. Since then, the mesocosms have been used to investigate the effects of industrial effluents on model aquatic ecosystems. With the completion of these studies, the mesocosms are now available to outside researchers. The design of the facility emphasizes containment, winter operations, and versatility – characteristics vital to invasive species research conducted under real-world conditions. Composed of 30 in-ground mesocosms (approximately 14,000 L each), with all the necessary supporting infrastructure, equipment, and protocols, the facility is well suited to investigations of the impact (e.g., risk factors, ecological consequences), detection (e.g., eDNA, imaging), and control (e.g., pesticide efficacy, ecosystem recovery) of aquatic invasive species. This poster will








provide an overview of the facility's design and construction, emphasizing those aspects which are uniquely valuable to researchers.

**Spatial Ecology of Invasive Wild Boar (*Sus scrofa*) in Canada: Informing Population and Disease Control**  
Devin Fitzpatrick, Faculty of Veterinary Medicine, University of Calgary

The poster will cover the objectives of Devin's PhD project. Invasive wild boar are currently spreading in Canada in unknown numbers. In addition to threatening native ecosystems through competition and habitat degradation and destroying agricultural crops, wild boar carry the risk of transmitting diseases to humans, livestock, and other wildlife species. African swine fever, a devastating disease for both wild boar and domestic pigs, is one disease of particular concern. If introduced to Canada, African swine fever could result in the same detrimental impacts felt in other regions of the world, for both the economy and animal health and welfare. Development of effective population and disease control strategies is critical; however, this is currently hindered by a lack of information on wild boar spatial ecology. There have been no density or home range estimates published for the species in Canada, or research into factors such as territoriality that shape contact patterns. All of these measures heavily influence the transmission and spread of disease. I will compile existing datasets from across Alberta to map the current distribution and predict future spread of the species in the province. I will also collect additional data via camera trapping and GPS telemetry tracking to determine population characteristics, including density, home range area, and habitat use, as well as establish patterns of intra- and inter-sounder contact. Development of effective, evidence-based management actions targeting wild boar populations in Alberta will ensure the preservation of ecosystem integrity and both public and animal health in the province.

**Surveillance of Circulating Infectious Disease on Free-Ranging Invasive Wild Boar in Alberta, Canada**  
Oshin Ley Garcia and Mathieu Pruvot, Faculty of Veterinary Medicine, University of Calgary

Invasive wild boars are a growing concern in North America, particularly in the prairie provinces, posing an increasing risk of disease transmission to livestock, and raising significant concerns for livestock production and rural communities. Currently, there are knowledge gaps regarding the health status of Alberta wild boars and their impact on disease transmission at the wildlife-livestock interface. The research aims to increase the surveillance of infectious diseases in invasive wild boars in Alberta. We hypothesize that wild boars are host to common swine pathogens. Major pathogens circulating in Canada were selected as models for wild-livestock transmission, including Influenza A virus (IAV), Porcine Circoviruses (PCV), Porcine Reproductive and Respiratory Syndrome (PRRS), *Erysipelas* spp. and *Mycoplasma hyopneumoniae*. Through the Wild Boar Eradication Program, 100 serums and 266 viscera were collected, and tested for specific pathogens using serology and molecular diagnostics. Phylogenetic analysis will estimate spillover frequencies between wild and domestic pigs. The study will further investigate potential scenarios and risk factors for African Swine Fever (ASF) introduction in Alberta, based on expert knowledge to produce risk maps to support risk-based surveillance. Opportunistic surveillance in the province aims to gather vital data on pathogen transmission, aiding in prioritizing on-farm biosecurity measures. Screening results will guide targeted intervention at high-prevalence sites and increase awareness of the epidemiological role of wild boars in swine production diseases. This study enhances our understanding of the impact of a new host in Canadian landscapes, contributing to improved biosecurity, pathogen vigilance, and preparedness for foreign animal disease incursion.





## **Factors Favouring Invasion by *Caragana arborescens* in the Southern Boreal Zone**

Martin Hinojosa, Jacob Mamchur, James F. Cahill, and Viktoria Wagner, University of Alberta

Invasive non-native plants are an important driver of global ecosystem transformation. *Caragana arborescens*, a non-native shrub distributed on a large scale by the PFRA to establish shelterbelts for erosion control, has several traits indicative of high invasiveness: a high rate of seed set and germination, ability to suppress neighbouring plants, fix nitrogen, and an ability to adapt to a wide range of habitats. *Caragana* has escaped cultivation in Alberta, Manitoba, Europe, the USA, and Russia. Given the widespread distribution of *Caragana*, the limited available information and that it has been reported to escape into natural habitat, we aim to understand the current state of spread and the factors facilitating invasions from shelter belts. We expected that places with a higher light availability and sandy soil texture would favour *Caragana*'s spread. Based on location data (PFRA) and a road survey, we located 38 escaping populations in Alberta and Saskatchewan, and investigated how environmental factors and time since the planting influence *Caragana* invasion success. At each population, we mapped the spatial extent of the escaped population and established random transects and plots to count *Caragana* individuals in the understory, shrub, and canopy. We also recorded the habitat type, dominant species cover, and collected soil samples for further lab analyses, and estimated non-*Caragana* species' cover. Our results will help to understand the factors that facilitate *Caragana arborescens* spread in the southern boreal zone, and can help land managers and policymakers in Alberta to make informed decisions regarding management actions.

## **Initiating the Use of Canada Thistle Rust Fungus (*Puccinia suaveolens*) as a Biocontrol Agent for Canada Thistle (*Cirsium arvense*) in Elk Island National Park**

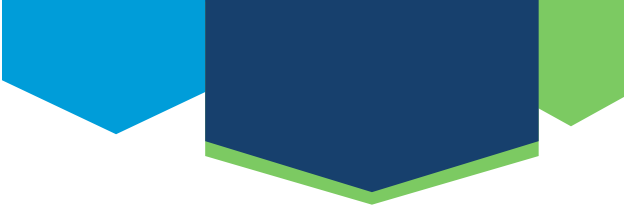
Marissa Lynds, Parks Canada Agency, Elk Island National Park

Canada thistle rust fungus (*Puccinia suaveolens*) is a complex fungal pathogen that is host-specific to Canada thistle (*Cirsium arvense*) and naturalized in North America. It can reduce thistle density when used as a biocontrol. Thistle rust was first observed in Elk Island National Park (EINP) in June 2022. Monitoring of thistle rust-infected and uninfected sites began in 2023 to determine inoculation success at uninfected sites, identify changes in thistle densities in response to thistle rust presence, and determine the feasibility of thistle rust as a biocontrol option in EINP. Monitoring and inoculation methods were adapted from the Colorado Department of Agriculture procedures. Two uninfected sites were selected based on absence of thistle rust and habitat type. Two transects were established at each of the uninfected sites and at one infected site. Sites were monitored in July for thistle stem density, thistle health, and infection severity. Uninfected sites had higher stem densities (41.0 and 91.3 stems/m<sup>2</sup>) compared to the infected site (27.7 stems/m<sup>2</sup>). The density of thistle rust infected stems at the infected site was 8.0 stems/m<sup>2</sup>. In September, uninfected sites were clipped to stimulate thistle rosette growth and were subsequently inoculated with thistle rust teliospores collected from the infected site. Monitoring of sites will continue in 2024 to determine inoculation success and changes to thistle stem densities and health. These findings will help determine if thistle rust is a feasible biocontrol agent for managing thistle in EINP.

## **Comparing the Effectiveness of Different Methodologies for Detecting Escaping *Caragana arborescens***

Jacob Mamchur, Martin Hinojosa, James F. Cahill, and Viktoria Wagner, University of Alberta





*Caragana arborescens* is an introduced shrub planted widely as a shelterbelt species in the prairie region, including by the Prairie Farm Rehabilitation Administration (PFRA). An increasing number of studies reported *Caragana* to escape into natural habitat, yet the extent of escape is unknown and a protocol for detecting escaping populations is lacking. The purpose of this study was to assess the extent of *Caragana*'s invasion to natural habitat in Alberta and Saskatchewan and to compare the effectiveness of detecting escaping *Caragana* populations using two protocols. (1) We used a database provided by the PFRA with geographic information on distributed *Caragana* saplings. Using this approach, we visited 78 locations in Alberta, of which 41% reported no *Caragana* plantations and 26% reported a positive *Caragana* presence but were not bordering on natural habitat thereby eliminating the possibility of invasion. (2) By contrast, our second method - "drive-by" sampling - located 104 populations bordering natural habitat (73 in Alberta, 31 in Saskatchewan). Cross-referencing with the PFRA database showed 89% of these sites in Alberta and 90% in Saskatchewan were not listed by the PFRA. In total, both methods found planted *Caragana* to escape in 38 locations in the southern boreal forest in Alberta and Saskatchewan. We conclude that relying on PFRA data alone is an insufficient method to spot escaping *Caragana* populations. Given the high frequency of escaping *Caragana*, a drive-by approach, coupled with a collaboration with local communities, might provide a more efficient and reliable method to locate escaping populations.

#### **Tiny Plants, Big Impact? An Assessment of Invasiveness in Small-Sized, Exotic Annual Forbs in Southwestern Alberta**


Britton McNerlin, Kelly Wu, Viktoria Wagner, Department of Biological Sciences, University of Alberta

While the ecological impact of small-sized exotic annual grasses is well-documented in western North America, there is a notable research gap on the invasiveness of small-sized exotic annual forbs, such as *Arenaria serpyllifolia* and *Veronica verna*, which can be frequent in foothill grasslands and mountain meadows. Their ability to develop a dense mat could pose a threat to small-sized native annual forbs. Furthermore, although exotic annual forbs may not outcompete large native perennials like *Balsamorhiza sagittata* or *Festuca idahoensis*, they could outcompete native perennial seedlings and thus change the compositional trajectory of plant communities. Despite these threats, little is known about the competitive ability of small-sized exotic annual forbs. We have designed a pairwise competition experiment at the plant growth chamber facilities at the University of Alberta using ten replicate pots per species combination and ten replicate control pots for each study species grown without a competitor (total n = 410). We will assess the effect of exotic annual forbs (4 species) on native annual forbs (6 species) and seedlings of native perennial plants (2 species) and will compare their competitive ability to that of exotic annual grasses (2 species). Data analysis is pending, and this poster presentation aims to spark interest and discussion on the invasiveness of exotic annual forbs.


#### **Seroprevalence of *Trichinella* in Alberta Wild Pigs**

Kiera Middel, Chunu Mainali and Darcy Visscher, The Kings University; Hannah McKenzie, Alberta Agriculture and Irrigation

Wild pigs have been present in Alberta for years and have emerged as a growing concern due to their rising numbers and stubbornness against eradication. This invasive species poses a significant ecological and agricultural risk. Importantly, they are also a vector for various zoonotic diseases, such as Trichinosis. This disease results from the parasitic nematode *Trichinella* spp., which is concerning due to







its transmissibility to humans and domestic livestock. Over six years (2018-2024), 225 wild pig diaphragms were collected from eight sites across four Alberta counties: Strathcona County, Two Hill County, Woodland County, and Lac Ste Anne County. Tissue fluid was collected from the samples and underwent analysis for the presence of antibodies against *Trichinella* spp. using a commercial ELISA kit. The true prevalence of positive samples was calculated using the reported sensitivities and specificities of the kit. Among the 225 samples tested, the ELISA test identified seven positive samples, corresponding to a preliminary seroprevalence of 3.1%. Initial analysis revealed no significant difference in seroprevalence of age groups or gender; however, there was a statistical difference in county seroprevalence. Further investigations should validate positive results through artificial digestion and determine the *Trichinella* species present through PCR. These findings acknowledge Alberta's wild pigs as reservoirs of *Trichinella* and underscore the associated threats to Alberta's domestic livestock and human population.

### **Battling the Perfect Invader: Overview of Efforts to Control Prussian Carp in City of Calgary Stormwater Ponds**

Rick Robinson, Natalya Sapova and Eileen Teasdale, City of Calgary Water Services; Dean Foster and Jessica Eaton, Associated Engineering Group Ltd.; and Teagan Fladager, KBL Environmental


Prussian carp (*Carassius gibelio*) were likely introduced to Alberta around 2000, and have been rapidly increasing in both abundance and distribution (estimates are they are doubling their geographic distribution in Alberta every 5 years). In Eurasia, they are considered one of the most harmful non-native fish species. Experience thus far in Alberta has shown this species can have significant impacts in aquatic systems, including displacing established sport fisheries. Prussian carp's hardiness, aggressiveness, and unique life-history strategies (e.g., gynogenesis reproduction) likely contribute to their rapid spread, leading some to refer to the species as the "Perfect Invader". There is also a likely key "human component" to their rapid spread, as unlike many other invasive species, Prussian carp are highly regarded by some members of the fishing community as a food fish.

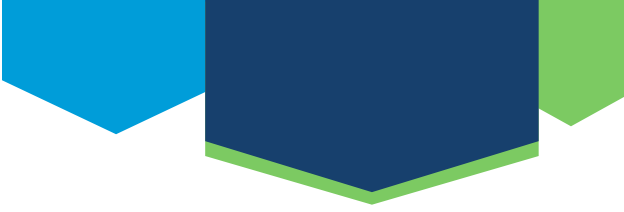
Municipal stormwater ponds appear to be ideal habitat for Prussian carp. This presentation will describe efforts to better understand this species' behaviors and life strategy in City of Calgary stormwater ponds, and to develop alternative, cost-effective methods integrated into existing stormwater maintenance programs to control the continued spread of this species. Over the past two years, the City has piloted a dewatering and freezing program to eradicate carp without using pesticides (i.e., rotenone), implemented an eDNA sampling program to document the extent of Prussian carp, and developed a fish passage study to understand emigration from storm ponds to natural waterbodies. This has been accompanied by increased awareness and enforcement efforts to reduce the human component to their spread.

### **Where did the trematodes go? Carp invasion upends host-parasite dynamics in a eutrophic wetland**

Molly Tilley, Dilini Abeyrama, Cameron P. Goater, Steve Wiseman, and Matthew J. Bogard, Aquatic Biogeochemistry Lab, University of Lethbridge

Parasite surveys are a widely used tool for assessing aquatic ecosystem health. Human stressors can alter host-parasite dynamics and complicate the interpretation of parasite bioindicator surveys. Here, we explore how a recent Prussian Carp introduction has altered a model host-parasite system in the Frank Lake wetland complex (southern AB). We enumerated the brain-encysting trematode






*Ornithodiplostomum pychocheilus* larvae in its second intermediate host (fathead minnows) and compared findings to previous regional data. We found extremely limited numbers of larvae in Frank Lake minnows relative to previously surveyed ecosystems, suggesting that Carp may impede minnow infection, possibly through the predation of snail first intermediate hosts or ingestion of parasite larvae. Caging experiments showed snails can thrive in Frank Lake when Carp predation pressure is eliminated. As a positive control, we used lab-based incubations to confirm that Carp ingest juvenile pond snails (25% population removal in 2 days). Taken together, this work suggests that introduced carp may indirectly restrict the transmission of trematode larvae into its' native host.

**Invasive and Noxious Species Management in The Gaetz Lake Sanctuary, Red Deer, Alberta, Managed by the Waskasoo Environmental Education Society. Techniques Used and Success' Found Controlling Cicer Milk Vetch (*Astragalus cicer*), Canada Thistle (*Cirsium arvense*), and Common Toadflax (*Linaria vulgaris*) in Alberta's Oldest Federal Migratory Bird Sanctuary**

Thomas Wooff, Todd Nivens MA, and Jeannette Hall, Kerry Wood Nature Centre & Historic Fort Normandeau

The Gaetz Lake Sanctuary in Red Deer, Alberta is a Federally Protected Migratory Bird Sanctuary. Its status as a protected preservation area means that typical invasive or noxious plant control techniques including herbicides and heavy machinery cannot be used. This means that invasive species management, primarily of cicer milkvetch, Canada thistle, and common toadflax must be done with organic non-destructive methods. Organic vegetation management of invasive species is provided by BAAH'D Plant Management and Reclamation through target browsing of problem areas by goats outside of nesting season. Those efforts are supplemented with a non-toxic natural weed spray used to desiccate the fruiting heads of Canada thistle prior to seed dispersal, as well as manual pulling and disposal of Canada thistle, cicer milkvetch, and common toadflax as well as occasional manual removal of less common invasive species such as black henbane (*Hyoscyamus niger*). Pulling and control of thistle patches is conducted primarily by individual volunteers and groups, the latter of which are able to remove roughly 160 cubic feet of plant material on average in a two-hour period. The Gaetz Lake Sanctuary has seen a significant decrease in noxious plant species populations due to these efforts despite the constant influx of seeds from uncontrolled populations outside the sanctuary boundaries. The invasive cicer milkvetch population has been kept in check through management by the goats from BAAH'D and its spread has slowed significantly thanks to their efforts.



# Day 1

March 20, 2024

## Conference Welcome and Announcements – 10:00AM to 10:15AM

## Invasive Species on a Global Scale, But Under an Alberta Perspective – 10:15AM to 11:15AM

Dr. Patrick Hanington, University of Alberta, and Nicole Kimmel, Government of Alberta

Attending the Alberta Invasive Species Council Conference demonstrates your active participation in the worldwide endeavor to safeguard against invasive species. Unfortunately, support for addressing invasive species often goes unnoticed, underestimated, and unacknowledged. According to the latest comprehensive report from the Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES), human activities have introduced over 37,000 invasive species globally. This staggering number, and its ongoing increase at unprecedented rates, is a cause for concern.



Among these, more than 3,500 are deemed harmful invasive species, posing a serious threat to nature, its contributions to people, and overall quality of life. The gravity of the situation is frequently overlooked until it reaches a critical point. Invasive species present a significant challenge for the people of Alberta. During this conference session, take the opportunity to delve into the global landscape of invasive species and understand the potential consequences for Alberta if we relent in our efforts to combat them.

## Canada Thistle Rust Fungus (*Puccinia suaveolens*) Biocontrol Field Trials in Edmonton – 11:15AM to 11:45AM

Mike Jenkins, City of Edmonton

Canada thistle (*Cirsium arvense*) is one of the first non-native weeds introduced to Canada in the 1600's and has been an issue ever since. This persistent perennial is notoriously hard to control, especially in natural areas where herbicide use may not be desirable. Most biocontrol options currently available do not offer adequate management to reduce stem densities significantly, however as early as 1893 a rust disease (*Puccinia punctiformis*, now *P. suaveolens*) was proposed as a potential biological control due to its ability to reduce stem densities significantly.



With new progress made on the biology of this disease, trials began in 2021 to test the efficacy and viability of using *P. suaveolens* to manage populations of Canada thistle in natural and naturalized areas in the northern climates of the Edmonton region. This naturally occurring rust fungus has the capability of managing thistle populations by reducing stem counts after two to five years of infection onset by 45% to 100%. These field trials have resulted in successful infections of Canada thistle, even on lower quality sites; improvements to the inoculant refining process, producing a high-quality product for application; and a working method of water-based application resulting in higher infection rates than previously established protocols. This progress allows us to outline a new program for Canada thistle control in natural areas for vegetation management crews within the City of Edmonton and other northern regions.



Mike Jenkins was born and raised in the Edmonton area, where he started off collecting caterpillars and ground beetles with his brother. While studying paleontology at the University of Alberta, he got a summer job in 1991 with the City of Edmonton splashing in puddles and counting mosquitoes. This led to more summers researching biological controls of mosquitoes, and the diversity of non-target organisms, as well as monitoring for invasive insect and disease species in the urban forest. In 2005 Mike became the supervisor of the city's Pest Management Lab, and later became the coordinator for all of Pest Management Lab and Operations, responsible for surveillance, monitoring and management of invasive insects, aquatic invertebrates, tree diseases and vertebrates for Edmonton.

### **Morphological Traits to Differentiate Between Native and Invasive Phragmites and an Update on Biocontrol – 11:45AM to 12:15PM**

Dr. Michael McTavish, University of Toronto

Field releases of the stem-boring moths *Archanara neurica* and *Lenisa geminipuncta* (Lepidoptera: Noctuidae) as classical biological control agents for introduced *Phragmites australis australis* began in Ontario in 2019. As of fall 2023, we have released approximately 24,000 insects across 30 sites. This presentation will provide a brief overview of current release methods for biocontrol of introduced Phragmites and a summary of the annual monitoring data from the first couple of years following release. We have had a high success rate detecting initial biocontrol agent feeding damage immediately following release (92% of release sites). All release sites with initial feeding damage continued to show biocontrol agent activity in the first and second years of follow-up monitoring. Preliminary results demonstrate that biocontrol agents can reduce the height and reproductive output of damaged introduced Phragmites stems. The amount of initial biocontrol feeding activity has been very encouraging, and the persistence



over multiple years of monitoring suggests agent populations are beginning to establish at multiple locations. Developing these initial robust “nurse site” populations will help us scale up additional releases at new sites to help manage introduced Phragmites at a landscape scale.

Dr. Michael McTavish is a postdoctoral research fellow working with the Smith Forest Health Lab at the University of Toronto. He has a research background in the fields of ecological restoration, invasion science, and the biological control of weeds. His current research focuses on biocontrol of introduced Phragmites and garlic mustard (*Alliaria petiolata*) and the ecology of non-native earthworms.

--- 1 HOUR LUNCH BREAK ---

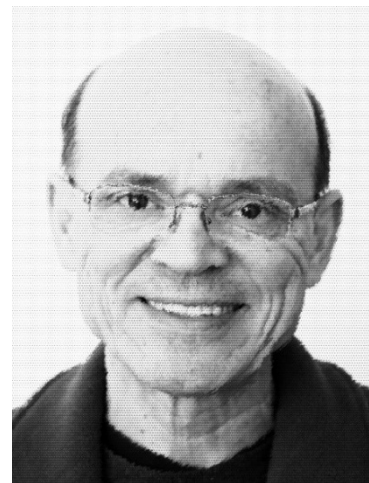
#### **AISC’s Annual General Meeting (AGM) – 1:15PM to 2:00PM**

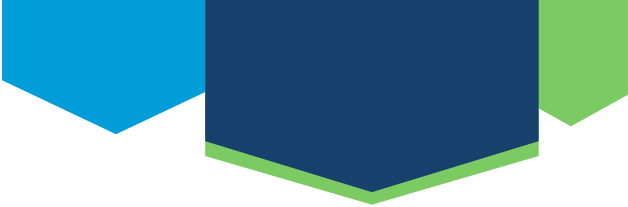
- Adoption of Agenda and 2023 AGM Minutes
- Chair Report
- Financial Report
- Appointment of Auditor
- Operations Report
- Communications Report
- New Business
- Elections
- Big EDD Award
- Adjournment

#### **130 Years of Plant Invasion History in Alberta: Patterns and Differences in the Delays Between Introduction and Subsequent Rapid Spread– 2:00PM to 2:30PM**

Chris Neeser, Government of Alberta

The rate of spread of invasive plants can vary considerably between different geographic regions. It has often been observed that there can be a substantial delay between the time of introduction and the initial phase of rapid spread. During this initial period a newly introduced plant may undergo a selection process to build up a gene pool with a high frequency of traits that are more suitable to the new environment. In the absence of gene flow, as would be the case in isolated populations, it may take many generations before mutations broaden the gene pool enough for new adaptive traits to emerge. To better understand the relationship between first introduction and subsequent spread of regulated plants we turned to examining herbarium records to find evidence of when our regulated plants first appeared in Alberta. We searched the records of 30 herbaria in Canada and North-Western US that we considered likely to contain invasive





plants collected in Alberta. These records revealed that in many cases there were considerable delays before a species became widespread, whereas in other cases a species became established and spread quite rapidly. This presentation will highlight some of the plants that present one or the other of these patterns and discuss factors that may determine the differences in their current distribution.

Chris Neeser has been with the Ministry of Agriculture, Forestry and Rural Economic Development since May of 2000. At first as the Special Crops Weed Control Specialist, then as the Fruit and Vegetable Specialist, and for the last 15 years as the Weed Surveillance Lead. Previous work included postdoctoral weed ecology research at the University of Nebraska, teaching botany at the undergraduate level, and the supervision of reforestation projects. In 1990 Chris completed a B.Sc. in Agriculture, and in 1992 an M.Sc. in Plant Science, both at McGill University. He obtained his Ph.D. in Agricultural Production and Agroecosystems in 1997 from the University of Guelph.

### **Perspectives from Garden Retailers - Interactions with the Public Regarding Invasive Plant Species – 2:30PM to 3:00PM**

Jennifer Hoglin, Gooseberry Gardens

Garden retailers are the horticultural industry's link to the public. Yet the staff at these businesses are often completely lacking in knowledge of invasive species. While live plant material from outside of the country is regulated by CFIA, seeds rarely are. Additionally, plant material that is shipped from other provinces has no regulatory government check at all. That means it is left to staff at garden centers to be able to identify if any of their seed or plant stock is considered invasive in their province. This is further complicated by the fact that a plant may not be invasive within the province where the stock is purchased, but may be very invasive in the province into which that stock is shipped to sell to the public. Education is desperately needed for retailer owners, buyers, and staff on invasive species. Not only so that they can identify when/if invasive stock comes in, but also so that they can assist the public with identifying these species when they occur in their yards and public spaces. When customers ask specifically for species that have recently been listed as prohibited noxious or noxious, an educated staff can assist the public on the reasons why and provide them with some good plant alternatives.

Jennifer Hoglin was originally trained as an environmental biologist and architectural technologist, but soon realized her real passion was gardening. So, she added a Master Gardener certification and permaculture design certificate to her education. She has been gardening in the Calgary area for over 20 years and working in the retail garden industry in Southern Alberta for 12 of those years. Currently, she is the owner of Gooseberry Gardens, a gardening website, blog, and landscape design company. In her spare time, she teaches for the Calgary Horticultural Society, including their Master Gardener Program.





--- 30 MINUTE BREAK & POSTER SESSION ---

**The Alberta Rat Control Program – 3:30PM to 4:00PM**

Karen Wickerson, Government of Alberta

The presentation today will cover the history of the rat control program, why Alberta has been successful at preventing rats from establishing in the province and what the program is today.

Karen has worked for the Government of Alberta for 12 years. First as a post mortem technologist in the Airdrie Agriculture Pathology Lab for 7 years, and then as the Rat and Pest Specialist for the province for the past 4 years. Karen is a Registered Veterinary Technologist having worked in a rural mixed animal veterinary clinic for first 7 years of her veterinary career. When she graduated from the Animal Health Technology program at Olds College, she never thought her love of working with animals would lead to her running the rat control program for the province!



**Update on the Alberta Wild Boar Control Program – 4:00PM to 4:30PM**

Hannah McKenzie, Government of Alberta

This presentation will provide an overview of wild boar in Alberta. Hannah will review how they got here, what we know about their current distribution, and the threat they pose to agriculture, the environment, and the health of both animals and humans. She will also talk about the collaborative actions the Alberta Government and other partners are taking to protect Alberta from this destructive invasive species.

Hannah graduated from the University of Alberta with an MSc in Mathematical and Statistical Biology and an MSc Applied Mathematics. Prior to taking on her current role as Wild Boar Program Specialist, Hannah worked with the Alberta Aquatic Invasive Species program along with her K9 partner Seuss. Seuss puts his nose to work to stop invasive species and is trained to detect invasive mussels and wild boar scat. Hannah employs her quantitative skills to support evidence-informed policy and program decisions. She lives on an acreage near Innisfree with her husband, dogs and chickens.



## Mapping Established Strongholds for Invasive Wild Pig Populations on the Canadian Prairies – 4:30PM to 5:00PM

Ryan Brook, University of Saskatchewan

There are no native pigs in Canada but wild boar were introduced to all provinces and the Yukon Territory, in the 1980s and 1990s and were purposely cross-bred with a wide range of domestic pig breeds on meat and high fence shoot farms. Over the last 44 years, these animals constantly escaped from these farms and still do. After the domestic wild boar industry peaked and collapsed after 2001, many farms purposely released their animals to the wild and this still occurs. These free-ranging wild pigs were highly pre-adapted to surviving cold Canadian winters and readily adapted to thriving on the diverse agricultural crops available throughout the year. Occurrences of wild pigs on the Canadian Prairie Provinces of Alberta, Saskatchewan, and Manitoba has increased exponentially, from <10/year through the 1980s and 1990s, 24/year through the 2000s, 862/year through the 2010s, and >2200/year through the 2020s. The relative distribution of wild pigs across the three provinces has changed dramatically over time, with the overall distribution being Alberta 7%, Saskatchewan 61%, and Manitoba 32%. In each province there is one stronghold of wild pigs where the majority of animals are found in a concentrated area. I used wild pig confirmed occurrences from 1986-2023 across the Prairie Provinces to map the core strongholds based on standardized criteria incorporating confirmed reproduction and consistent wild pig occurrences over the last 10 years (86% of all occurrences). These results help address management challenges regarding the 'two pig problem' of dispersed occurrences and strongholds.



Dr. Brook is an Associate Professor in the College of Agriculture and Bioresources at the University of Saskatchewan. Raised on a farm near Winnipeg, he did his undergrad, masters, and PhD at University of Manitoba and his postdoc in caribou health at the University of Calgary Faculty of Veterinary Medicine. His group the 'Wildlife Ecology and Community Engagement' works primarily on issues at the wildlife-livestock interface on the Canadian Prairies in collaboration with Rural and Indigenous People, but has side hustles in the arctic and jungles of Sri Lanka.

## Closing Remarks for Day 1 – 5:00PM to 5:10PM

--- POSTER SESSION IN LIBRARY OR PHOTOS WITH TANK, THE GOLDFISH MASCOT ---

--- (5:10PM to 6:00PM) ---

## Mixer and Dinner at The Crossing Pub – 6:00PM

# Day 2

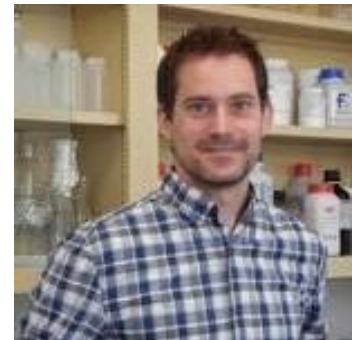
**March 21, 2024**

**Welcome and Announcements – 8:55AM to 9:00AM**

**Early detection of aquatic invasive species using Environmental DNA – 9:00AM to 9:25PM**

Dr. Patrick Hanington, University of Alberta

All organisms found within an aquatic ecosystem release DNA into their environment. Specific fragments of environmental DNA (eDNA) can be incredibly specific for the organism from which it originated. Amplification and detection of these specific eDNA fragments has been rapidly adopted as a way to detect aquatic invasive species and species at risk both rapidly and with high precision. Invasive species monitoring programs now frequently incorporate eDNA-based surveillance into their efforts to detect invasive species early, facilitating rapid responses. Our research aims to develop the foundation for an eDNA-surveillance program related to aquatic invasive species relevant to Alberta. We've developed multiplexed eDNA tests that allow us to detect over 30 unique invasive organisms from a single water sample. We've already applied these tests to over 600 samples collected throughout Alberta in 2023 and will continue this effort for two additional years. In this presentation, I will summarize the strengths and weaknesses associated with using eDNA to detect aquatic invasive species and present specific data from our project to highlight the value of eDNA to Alberta invasive species surveillance efforts.



Patrick is an associate professor in the School of Public Health at the University of Alberta. He is a parasitologist and immunologist by training and his research focuses on studying the interface between animals, parasites/pathogens and freshwater environments. This broad research focus often focuses on understanding three aspects of biology: the specific interactions that underpin host and parasite/pathogen compatibility, how populations of host and parasite influence each other within a freshwater ecosystem, and how species invasions can disrupt the balance between hosts and parasites. Patrick and his research group often approach these topics using multiple approaches that combine large-scale field surveys with large-scale spatial and temporal studies, molecular biology and specific host-parasite association investigations. In order to undertake these ambitious studies, Patrick and his team have relied on forming partnerships with Government of Alberta, non-government organizations, industry, education and community partnerships. These partnerships have coalesced into an incredible collaboration that advances research objectives, our

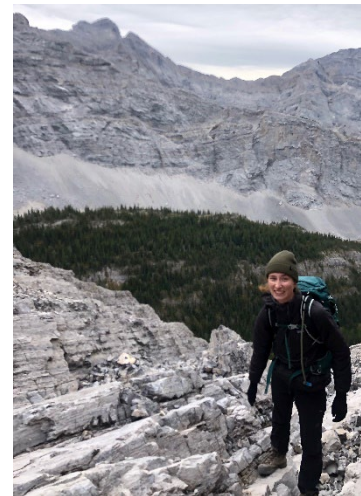


understanding of important issues related to freshwater ecosystems in Alberta and promotes healthy aquatic ecosystems for all.

### **Whirling Out of Control; What We Know So Far about Whirling Disease in Alberta – 9:25AM to 9:50AM**

Dani Jakovljevic, University of Alberta

Since the discovery of whirling disease (WD) in Canada in 2016, efforts have concentrated on understanding and preventing the spread of *Myxobolus cerebralis* (Mc). Historically, WD has devastated trout populations in the USA, resulting in 90% declines in certain susceptible populations. Thus, it may pose a significant threat to salmonid species in Alberta, including rainbow trout (*Oncorhynchus mykiss*) and Westslope cutthroat trout (*Oncorhynchus clarkii lewisi*), which is considered at-risk. Additionally, due to Alberta's thriving eco-tourism industry centred around angling, WD poses a substantial risk to the conservation efforts and economic prosperity of the guiding industry. In Alberta, WD has been detected in the Bow, Crowsnest, and Oldman rivers. Based on knowledge of Mc's two-host life cycle, a suite of biological and environmental barriers to Mc's transmission have been identified within Alberta. A temperature range of 10-17C is required for the proliferation of Mc within the aquatic oligochaete secondary host, *Tubifex tubifex*, which in the Crowsnest River displayed an overlap with when juvenile salmonids are most susceptible to Mc infection via exposure. Most recently, we learnt that Mc displays host specificity to a subspecies of *T. tubifex*, proliferating most effectively in Alberta through a subspecies that dominates Southern Alberta rivers such as the Crowsnest and Oldman. Ongoing research will look at the current spread of WD within the province regarding recent advancements in the understanding of WD's spread, as well as genetic inquiry into inherent resistance in fish native to the province.



Dani is a student at the University of Alberta in her first year of a master's of science. In her thesis project, she's looking at the aquatic invasive species Mc within the province. She's employing the use of environmental DNA monitoring and host genetic information to determine how and where the parasite may spread in Alberta and what fish populations may be at risk of whirling disease. When she's not in the lab, you can find her skiing, hiking, biking, paddleboarding, or camping, depending on what season it is. It is her greatest privilege to call Alberta home and she's grateful to play a part in the fight against invasive species!

### **Emerging Aquatic Invasive Threats in Alberta – 9:50AM to 10:15AM**

Nicole Kimmel, Government of Alberta

Learn about the highlights of the Aquatic Invasive Species program in 2023 and some sneak peaks into 2024.

Nicole received a BSc of Environmental Conservation Sciences from the University of Alberta in 2000 with a Specialization in Wildlife and Rangeland Sciences. She began working with invasive plants upon graduation, as a research assistant. After 10 years in research, her role evolved to Weed Specialist, for an additional 7 years of employment. In 2018, she moved to Environment & Protected Areas as the Aquatic Invasive Species (AIS) Specialist. There she supports the five elements of the AIS program (Policy & Legislation, Education & Outreach, Monitoring, Watercraft Inspections/Decontamination and Response). Nicole has near 24 years of service with the Government of Alberta.



--- 30 MINUTE BREAK ---

#### **Regional Aquatic Invasive Species Update for British Columbia – 10:40AM to 11:00AM**

Martina Beck, Government of British Columbia

An overview of the Government of British Columbia's Aquatic Invasive Species Program.

Martina is the Unit Head for the Freshwater Applied Science and Programs with the Ministry of Water, Land and Resource Stewardship with the Government of British Columbia. Martina has a B.Sc. in Biology and an M.Sc in Environmental Studies from the University of Victoria.

#### **Regional Aquatic Invasive Species Update for Saskatchewan – 11:00AM to 11:20AM**

Matt Tyree and Jeri Geiger, Government of Saskatchewan

An overview of the Government of Saskatchewan's Aquatic Invasive Species Program.

Matt is the Director of the Fisheries Unit for the Ministry of Environment with the Government of Saskatchewan. Before this, he spent six years as a Fisheries Biologist and working on environmental impact assessments with SNC-Lavalin. Matt has a degree in Aquaculture from the University of Maine and an M.Sc. in Aquatic Biology from the University of Nebraska.

Jeri is the Team Lead for the Aquatic Invasive Species Program for the Ministry of Environment with the Government of Saskatchewan.

#### **Regional Aquatic Invasive Species Update for Montana – Addressing AIS Through Partnerships – 11:20AM to 11:40AM**

Thomas Woolf, Government of Montana

An overview of Montana's AIS program and the value of partner involvement.

Thomas has been working on aquatic invasive species issues for over twenty years in Colorado, Minnesota, Idaho and Montana. In 2017, he started as the AIS Bureau Chief for Montana Fish Wildlife and Parks where he currently coordinates and manages the Aquatic Invasive Program.

#### **Roundtable of Regional Aquatic Invasive Species Update – 11:40AM to 12:00PM**

Martina Beck, Government of British Columbia, Matt Tyree, Jeri Geiger, Government of Saskatchewan, Thomas Woolf, Government of Montana and Nicole Kimmel, Government of Alberta

A roundtable discussion with regional Aquatic Invasive Species Specialists from neighbouring provinces and states, in relation to Alberta. This session will showcase the latest updates, research, monitoring efforts, and management strategies for combating aquatic invasives and provide valuable insights into cross-border challenges and innovative solutions to preserve water ecosystems.

**--- 1 HOUR LUNCH BREAK ---**

#### **Quagga Mussel Response for the Mid-Snake River in Idaho – 1:00PM to 1:25PM**

Nic Zurfluh, Government of Idaho

This presentation will focus on the five main pillars of the Mid-Snake Quagga Mussel response, highlighting the strategies employed for verification of detection, communication, containment, delimit survey, and treatment plan.

Nic Zurfluh is the Bureau Chief for the Invasive Species, Noxious Weed and Range Programs for the Idaho State Department of Agriculture.



#### **Novel Communications Techniques for Preventing Organisms in Trade in Canada – 1:25PM to 1:50PM**

Jenna White, Invasive Species Centre

Organisms in trade (OIT) refer to species that are marketed and exchanged in human-dominated and -mediated spaces such as the commercial trade, electronic commerce (e-commerce), live bait and food, individual pet ownership, horticulture, and water garden industries inclusively. These species have the capacity to become invasive if they are intentionally or unintentionally released into natural ecosystems apart from their place of origin. In the context of aquatic species, OIT may be distributed via aquaculture, water gardening, or aquarium pathways which can pose significant threats to natural waterways such as



lakes, rivers, or streams. OIT is one of the most significant pathways of spread for invasive species in an increasingly digital and dynamic international landscape.

The Invasive Species Centre has been working towards mitigating the spread of invasive species in Canada via the OIT pathway through its successful Don't Let It Loose Program and utilizing online content creators to disseminate key messaging. The Program, among other priorities, utilizes novel techniques and technologies to engage with targeted audiences on the threat of OIT and domestic animal releases on natural ecosystems. Through digital platforms, our aim is to reach audiences that belong to a spectrum of water-users, from aquarists to anglers, to demonstrate that individual relationships with water are universally connected. In this presentation, the ISC will delve into the trials and triumphs of working with online creators to share messaging on species belonging to the OIT pathway.



Jenna White is a Program Development Coordinator at the Invasive Species Centre, a non-for-profit organization that aims to protect Canada's lands and waters from invasive species. She has a degree in political science and a master's in environmental studies. At the Invasive Species Centre, Jenna works in the policy section and presently leads the Don't Let It Loose Program, which aims to communicate the threats of species released via the organisms in trade pathway. By using novel techniques, such as influencers and social media marketing, the Invasive Species Centre has been able to reach millions of Canadians with messaging on species release to prevent new introductions. Jenna aims to speak to this type of work and how communicating messaging through hobbyists and online content creators can be a means to promote environmental conservation to widespread and dynamic audiences.

### **Updates on the AISC's Don't Let It Loose Program – 1:50PM to 2:15PM**

Chelsea Currie, Alberta Invasive Species Council

Intentional release is one of the main pathways of spread for aquatic invasive species. Many common pet species like goldfish are frequently released in Alberta, altering habitat conditions and negatively impacting our native species. However, research shows that one of the best places to deliver messaging about preventing intentional release is at the point of sale. This was one of the main concepts that the AISC used to create the 'Don't Let it Loose' Retailer Recognition Pilot. By helping pet and aquarium retailer owners and staff recognize the threats of aquatic invasive species, they are better equipped to inform their customers about the dangers of releasing their pets into the wild. Chelsea's presentation will discuss the AISC's 'Don't Let it Loose' program history as well as current updates on the Retailer Recognition program's success as it continues to grow.

Chelsea's love for wetlands and aquatic species (especially amphibians!) arose from an upbringing in Southern Ontario, surrounded by protected wetlands on a portion of the Ontario greenbelt. Moving to British Columbia in 2017, she completed her BSc in Natural Resource Conservation at The University of British Columbia, majoring in Science and Management. After working in a broad range of fields including fire ecology and wildlife biology, Chelsea was introduced to invasive species ecology while working with the Jasper National Park Restoration Crew in the summer of 2021. It was through her work with the restoration crew she found a passion for managing invasive species in aquatic ecosystems and learned about programs including Clean Drain Dry. Since moving to the west of Canada, Chelsea has also grown a love for outdoor recreation and is usually out rock climbing, skiing, trail running, or paddling.



--- 30 MINUTE BREAK & POSTER SESSION ---

**Containing the Spread of Starry Stonewort – 2:45PM to 3:00PM**

Dr. Edgar Rudberg, CD3 Systems

The spread of Starry Stonewort is of great concern to Minnesota's natural resource managers and lake property owners. This concern stems from Starry Stonewort's impact on lake ecology, local economies, and recreational opportunities. A public-private partnership led by Minnesota Lakes and Rivers, in partnership with CD3, responded to its introduction in Minnesota by implementing a "containment strategy" to slow or stop its spread by providing the tools to boaters to clean, drain, and dry their boats at accesses on infested waterbodies. This presentation will outline the case study and its preliminary results.

As the third generation of his family in the boating industry, Dr. Rudberg is passionate about outdoor recreation and conservation. He is an avid angler, bow fisherman, hunter, and boater. As an entrepreneur of over a decade, he has developed numerous conservation-focused products that grew to national distribution. His Ph.D. in Natural Resources Science and Management blended communication and psychological theory to catalyze individuals' adoption of conservation behaviors on lakes.



## **Dutch Elm Disease in Saskatoon: Successes and Shortfalls – 3:00PM to 3:25PM**

Sydney Worthy, City of Saskatoon

Though Dutch Elm Disease (DED) has been present in Saskatchewan since the 1980s, the city of Saskatoon remained DED-free for approximately forty years. American Elm comprises approximately 25% of Saskatoon's urban canopy and has an estimated value of over \$500 million. Since 2015, Saskatoon has had seven cases of DED, four of which occurred in the summer of 2023. This talk will cover the successes of the city of Saskatoon's monitoring program, the response to the recent cases of DED, and future plans to mitigate DED in Saskatoon.

Sydney Worthy is an Entomologist for the City of Saskatoon and has a MSc in Conservation Biology from the University of Alberta. She did her research work on pollinators in southern Alberta and has an inordinate fondness for native bees, and volunteers as a taxonomist for the Alberta Native Bee Council. When she's not sitting behind a microscope, she's often hiking with her dogs and photographing insects.



## **Closing Remarks for Day 2 – 3:25PM to 3:30PM**

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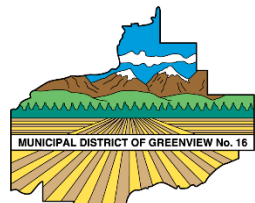
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